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ABSTRACT

This study examined the achievement of elementary school students when their strong preferences for learning alone or learning with peers were identified and they were allowed to choose whether to learn alone or with peers in each of five lessons. The 114 subjects, of whom 34 were later selected for this study, were the students of five social studies teachers who volunteered to take a course on learning styles. The Learning Style Inventory (Dunn, Dunn, & Price, 1989) was administered to each student to ascertain whether he/she had a strong preference for learning alone or with peers. The 34 students selected for the study on the basis of their having a strong preference were introduced to a small group learning method and taught five lessons with the option of working alone or with peers each time. The students were tested after each lesson. The results yielded by ANCOVA revealed that the students who were identified as strongly preferring to learn alone achieved significantly higher mean lesson-test scores than students identified as strongly preferring to learn with peers. Students identified as strongly preferring to learn alone did not achieve significantly higher when they opted to learn alone; students identified as strongly preferring to learn with peers did not achieve significantly higher when they opted to learn with peers. (Author)

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ABSTRACT

This study examined the achievement of elementary school students when their strong preferences for learning alone or learning with peers were identified and they were allowed to choose whether to learn alone or with peers in each of five lessons.

The 114 subjects, of whom 34 were later selected for this study, were the students of five social studies teachers who volunteered to take a course on learning styles. The Learning Style Inventory (Dunn, Dunn, & Price, 1989) was administered to each student to ascertain whether he/she had a strong preference for learning alone or with peers. The 34 students selected for the study on the basis of their having a strong preference were introduced to a small group learning method and taught five lessons with the option of working alone or with peers each time. The students were tested after each lesson.

The results yielded by ANCOVA revealed that the students who were identified as strongly preferring to learn alone achieved significantly higher mean lesson-test scores than students identified as strongly preferring to learn with peers. Students identified as strongly preferring to learn alone did not achieve significantly higher when they opted to learn alone; students identified as strongly preferring to learn with peers did not achieve significantly higher when they opted to learn with peers.

Do Students Who Prefer To Learn Alone Achieve Better Than Students Who Prefer To Learn With Peers?

Introduction

Research by Doyle (1983), Anderson (1984), and Goodlad (1984) has found that teachers spend most of their class time talking to students about material to be learned, asking short-answer questions, and assigning work to the students. Current instructional practices tend to be dominated by lecture, individual seatwork, and competitive testing and grading. Students are required generally to be passive, silent, and isolated.

In recent years, a body of literature has arisen that suggests that these current practices may not respond to important learner characteristics. In passivity, silence, and isolation there is little recognition of these learner characteristics and little provision for students who do not learn best through current instructional practices.

Even when efforts are made to change such structures, they still may not respond to important learner characteristics. For example, interest has grown in the instructional practices identified generally as "cooperative learning." A number of research studies (Slavin, 1983; Johnson & Johnson, 1975, 1989) on cooperative small groups have demonstrated higher achievement averages for groups of students. In contrast to the patterns discovered by Doyle (1983), Goodlad (1984), and Anderson (1984) cooperative learning students are not required to be passive,

silent, and isolated but, rather, are involved actively with their peers in learning activities. Even cooperative learning strategies, however, do not respond to all important learner characteristics. Research on learning style suggests that no single instructional method or approach is effective for all students (Dunn & Dunn, 1978; Hunt, 1979; Gregorc, 1979).

Over the past decade, researchers have focussed on the concept of learning style and on the development of instruments to identify a student's learning style preference. Some recent studies (Perrin, 1984; DeBello, 1985; Miles, 1988; Giannitti, 1988) which have concentrated on teaching students through their individual preferences for learning alone or with peers have documented significantly increased achievement when individuals were grouped in patterns that were responsive to these preferences. Other recent studies by Cholakis (1986) and Phelix (1988) have discovered no such increase. The present study seeks to shed some light on and to clarify such contradictory findings. Further, this study is the first to examine whether students achieve as well when taught through instructional methods congruent with their identified preference for learning alone or with peers as they do when given the opportunity to choose each time whether to learn alone or with peers.

Questions

This study sought to respond to the following questions:

1. Is there a difference between the achievement scores of students who are identified as having a strong preference for

learning alone and students who are identified as having strong preference for learning with peers?

2. Of the students identified as strongly preferring to learn alone, is there a difference between the scores of those who choose to learn alone and those who choose to learn with peers?

3. Of the students identified as strongly preferring to learn with peers, is there a difference between the scores of those who choose to learn with peers and those who choose to learn alone?

Method

Subjects

The 114 subjects involved in this study at the onset attend four elementary schools in suburban Syracuse, New York. They were the students who were taught social studies by the third, fourth, and fifth grade teachers who volunteered to take an inservice course on learning styles. There were 20 students in the third grade, 52 in the two fourth grades, and 42 in the two fifth grades. Table 1 shows the distribution by sex and grade level.

Insert Table 1 About Here

Procedure

The five participating teachers were enrolled in a twelve-hour course entitled "Accommodating Student Learning Preferences in the Classroom." They discovered their own learning styles through the

Productivity Environmental Preference Survey (Dunn, Dunn & Price, 1986), the adult version of the Learning Style Inventory, which was used in this study to identify students' preferences. The course included an overview of the twenty-one learning style elements identified by Dunn (1986). The teachers learned how to test students for their individual learning styles and how to interpret the profile results. They learned strategies for accommodating student preferences for learning alone or learning with peers; these strategies included Contract Activity Packages, Team Learning, and Circle of Knowledge (Dunn & Dunn, 1978).

The instructor met individually several times with each of the five teachers who participated in the study. Each teacher was directed to prepare five social studies lessons, each lasting from one to four days. For at least a part of each lesson, students were to have the opportunity to learn alone or with a small group of two to five peers. Each teacher was also directed to prepare his or her own test for the students to take at the end of each lesson.

The five teachers were asked to provide a rating of every student's achievement in social studies up to the time of the first small group learning lesson. This "baseline" grade provided a context within which to discuss student achievement scores.

Administration of the LSI. The students were administered the LSI of Dunn, Dunn, and Price (1989) to determine their diagnosed preference for learning alone or learning with peers. One-hundred four descriptive statements concerning each learning

style element are presented. For example, "When I really have a lot of studying to do, I like to work with a group of friends." Another statement is "I can study best in the afternoon." Students are encouraged to give immediate reaction to each statement on a "feeling" basis as to whether or not it applies to them.

The inventory, computer scored by Price Systems, Inc., identified the students who had a strong preference for learning alone or learning with peers. 17 students were identified as strongly preferring to learn alone, 17 as strongly preferring to learn with peers. All the rest were identified as having no strong preference. The 34 students who had a strong preference were selected for the study.

The students were introduced to a small group learning method and taught the five social studies lessons, each of which included an assignment the students could choose to do either alone or with two to five peers. The first two lessons were to acquaint the students with the small group learning method used by the teacher. At the end of every lesson, each teacher administered his or her own test. Every student took the test individually. The data used in the analysis consisted of the students' achievement scores on the third, fourth, and fifth lesson tests.

Design

The unit of analysis in the study was the individual student's

score on each of the three, short, teacher-prepared achievement tests. This score, coupled with each student's identified preference and the student's choice of learning alone or learning with peers, was used to determine mean scores; where appropriate, two-tailed t tests and analyses of covariance were carried out.

Results

Is There a Difference Between the Achievement Scores of Students Who Are Identified As Having a Strong Preference for Learning Alone and Students Who Are Identified As Having A Strong Preference for Learning With Peers?

Table 2 indicates the number of students identified as preferring to learn alone, to learn with peers, or as having no preference.

Insert Table 2 About Here

Table 3 presents the statistical results of the investigation carried out to answer the question. The results yielded by a t test revealed that the calculated value for the main effect of student preference was significant at the .05 level, indicating that there was a significant difference between the mean social studies test scores of students identified as having a strong preference for learning alone and those identified as having a strong preference for learning with peers. Specifically, those identified as preferring to learn alone evidenced statistically

higher mean lesson-test scores than those who were identified as preferring to learn with peers.

Insert Table 3 About Here

In order to control statistically any initial differences in the students' social studies achievement which might have been present and which might confound differences between the two groups of students, the analysis-of-covariance (ANCOVA) design was utilized. This made it possible to compare group means on the dependent variable lesson-test scores after these group means had been adjusted for differences between the groups on a relevant covariate variable. The covariate selected was the baseline grade, the grade achieved in social studied from the beginning of the year until the first lesson of this study.

Table 4 presents the means of : 1) the baseline grade, 2) the third, fourth, and fifth lesson-test scores, and 3) the adjusted lesson-test scores. For the students identified as strongly preferring to learn alone, the mean adjusted lesson-test score was 85.4; for students who were identified as strongly preferring to learn with peers, the mean adjusted score was 75.9.

Insert Table 4 About Here

Table 5 summarizes the results of ANCOVA. Students' baseline grades were used as the covariate. These results reveal that students identified by the LSI as strongly preferring to learn alone scored significantly higher than those students identified as strongly preferring to learn with peers even after the mean test

scores were adjusted.

Insert Table 5 About Here

Of the Students Identified As Strongly Preferring To Learn Alone, Is There A Difference Between The Scores of Those Who Choose To Learn Alone and Those Who Choose To Learn With Peers?

Of the Students Identified As Strongly Preferring To Learn with Peers, Is There A Difference Between The Scores Of Those Who Choose To Learn With Peers and Those Who Choose To Learn Alone?

T tests were carried out to determine whether significant differences existed between the two identified groups in two classroom organization patterns. Specifically, these comparisons revealed that of the students identified as strongly preferring to learn alone, the mean scores of those who chose to learn alone did not differ significantly from the mean scores of those who chose to learn with peers. Of the students identified as strongly preferring to learn with peers, the results of youngsters who opted to learn with peers were not significantly different from the results of those who elected to learn alone.

Discussion

On the basis of this study, it can be concluded that students identified by the LSI as strongly preferring to learn alone achieved significantly higher mean lesson-test scores than did students identified as strongly preferring to learn with peers,

regardless of their actual choice of classroom organization pattern.

The finding that students identified by the LSI as strongly preferring to learn alone achieved significantly higher than those identified as strongly preferring to learn with peers supports the findings of Miles (1988) and Cholakis (1986) but conflicts with the results of Perrin (1984), De Bello (1985), and Giannitti (1988) which revealed that no diagnosed learning style group achieved better than any other. It is interesting to note that in this study the students identified as strongly preferring to learn alone achieved better than those identified as strongly preferring to learn with peers not only on the five lesson tests but on the baseline grade as well. Perhaps these youngsters have achieved academic success up to now because the instructional treatment matches their strong preference for learning alone. Similarly, it is possible that students identified as preferring to learn with peers have not achieved as much academic success up to now partly because the classroom organization pattern does not match their strong preference for learning with peers.

SUGGESTIONS FOR FURTHER STUDY

Perhaps students identified as strongly preferring to learn alone consist mainly of "success students," which is one of the five student types described by Good and Brophy (1984). Success students are task oriented, academically capable, and cooperative. Students identified as strongly preferring to learn with peers may be primarily what Good and Brophy term "social students." These

youngsters are more person oriented than task oriented. They value friendship more than achievement.

Another factor contributing to the higher scores of the students identified by the LSI as strongly preferring to learn alone may be motivation. Perhaps these were the more highly motivated youngsters who put forth a greater effort in both treatment conditions, alone and with peers.

Further research could shed light on exactly what qualities distinguish students identified as strongly preferring to learn alone from those identified as strongly preferring to learn with peers.

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Tables

Table 1

Distribution of Subjects By Sex and Grade

Sex	Grade 3	4	5
Girls	13	24	16
Boys	7	28	26

Table 2

Test-Identified Preference

Preference	Number of Students
Learn Alone	17
Learn with Peers	17
No Preference	80

Table 3

Comparison of Scores of LSI Preferenced Groups

LSI Preference	Mean Scores	t	p
Learn Alone	85.6 (17)	2.39	.02*
Learn with Peers	71.1 (17)		

*p<.05
Note: Ns are in parentheses.

Table 4

Adjusted Mean Scores of LSI - Alone Students and LSI - Peers Students

LSI Preference	n	Mean B Grade	Mean Score	Adjusted Mean Score
Learn Alone	17	83.5	85.6	85.4
Learn with Peers	17	76.9	71.1	75.9

Table 5

One-Way ANCOVA Comparing LSI - Alone and LSI - Peers Students

LSI Preference	Probability	
	A	B
A - Learn Alone	...	.0151*
B - Learn with Peers	.0151	...

*p<.05